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**RESPONSE UNDER 37 C.F.R. § 1.116
EXPEDITED PROCEDURE - EXAMINING GROUP 1740**

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : David S. Wardrop et al.
Application No. : 10/017,483
Confirmation No. : 5180
Filed : December 14, 2001
For : FUEL CELL SYSTEM SHUNT REGULATOR METHOD AND
APPARATUS

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TC 1700

Examiner : Raymond Alejandro
Art Unit : 1745
Docket No. : 130109.431
Date : January 22, 2004

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Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

RESPONSE UNDER 37 C.F.R. § 1.116

Commissioner for Patents:

This is a Response to the final Office Action mailed November 24, 2003, in which a three (3) month Shortened Statutory Period for Response has been set, due to expire February 24, 2004. Twenty (20) claims, including five (5) independent claims, were paid for in the application. No claims are canceled or amended by way of this response. No new matter has been added to the application. No fee for additional claims is due by way of this Response. The Commissioner is authorized to charge any fees due by way of this Response, or credit any overpayment, to our Deposit Account No. 19-1090. Claims 1-9 are pending.

Applicants' attorney thanks Examiner Alejandro for the courtesy of the telephonic interview conducted on January 20, 2004.

35 U.S.C. §102(b) Rejections

Claims 1-7 and 9 were rejected under 35 U.S.C. §103(a) as being unpatentable over Keller et al. (U.S. Patent No. 3,850,695) in view of European Patent Application Publication (EP-982788).

The exemplary embodiments of Applicants' invention and the teachings of U.S. 3,850,695 (hereinafter Keller) are discussed in the previous amendment filed October 28, 2003, and are omitted from this response in the interest of brevity.

The outstanding Office Action states that "applicants have basically or essentially argued that the load feature of the '695 patent apparently do not have the same functionality as the disclosed but not claimed feature of the instant application." Office Action mailed November 24, 2003, page 8 (emphasis in original). The Office Action further states that "it is noted that the features upon which applicant relies (*i.e., the load including resistive element such as resistor for thermally dissipating excess power, or also including capacitive and/or inductive elements*) are not recited in the rejected claims." Id. The Office Action concludes "[u]nless applicants clearly differentiate the structure of the claimed fuel cell stack assembly from the structure of the prior art fuel cell, it is contended that, for practical purposes, the fuel cell of the prior art is able to implement the defined requisite functionality to satisfy the claimed requirement." Office Action mailed November 24, 2003, page 9.

The Examiner seems to have focused solely on the term "dump load" to the exclusion of other express limitations in the claims, which were discussed in Applicants' remarks in the previous amendment (*i.e.,* Amendment filed October 28, 2003). As was pointed out in the telephone conference of January 20, 2004, the Office Actions to date have not addressed the substantive limitations in the final subparagraph of independent claim 1. In particular, claim 1 recites, *inter alia*, "a first transistor coupled for activation via the first threshold detector; and a first dump load, wherein *the first transistor is responsive to the stack terminal voltage across the first set of fuel cells to selectively couple the first dump load in parallel with the first set of fuel cells when the stack terminal voltage across the first set of solid polymer electrochemical fuel cells exceeds a threshold voltage and to uncouple the first dump load when the stack terminal*

voltage across the first set of solid polymer electrochemical fuel cells *is below the threshold voltage.*" (Emphasis added.)

The Examiner contends that the electric motor of Keller constitutes a dump load, and thus Keller anticipates claim 1. However, in its first stage voltage regulation scheme, Keller teaches *increasing* the power to the motor 7 (via increased duration and/or frequency of driving pulses) in response to the output voltage *falling* below a defined threshold. Keller, col.2, line 60–col. 3, line 5, and col. 7, line 66–col.8, line 8. Thus, Keller teaches *coupling* the motor 7 to the fuel cell stack 2 *when the output voltage falls below the threshold value* and ipso facto *uncoupling* the motor from the power source *when the output voltage exceeds the threshold value.* Consequently, the Keller teaching is in *direct contrast* to the limitations recited in the final sub-paragraph of Applicants' claim 1.

As explained in the previous amendment, the motor 7 would *not* function as a *dump load* to dampen an overvoltage condition. Keller teaches *increasing* the power to the motor 7 (via increased duration and/or frequency) in response to the *voltage falling* below a defined threshold (first stage voltage regulation). Keller, col.2, line 60 –col. 3, line 5, and col. 7, line 66–col.8, line 8. Thus, "the control pulse results in providing *additional supply of fuel* to the fuel cell battery 2" Keller, col.8, lines 4-8 (emphasis added). Consequently, the fuel cell 2 will produce *more* power, *resulting in a higher voltage* on the output bus, and further upward adjustments to the purported "dump load" (*i.e.*, motor 7). This operation results in the catastrophic runaway of the system.

Thus, Keller fails to teach or suggest a *first transistor is responsive to the stack terminal voltage to selectively couple the first dump load in parallel with the first set of fuel cells when the stack terminal voltage exceeds a threshold voltage and to uncouple the first dump load when the stack terminal voltage is below the threshold voltage*, as expressly recited in claim 1. European Patent Application Publication (EP-982788) fails to supply these teachings missing from Keller.

With respect to the rejections repeated from the first Office Action in the outstanding Office Action, Applicants rely upon the arguments set out in Applicants' previous Amendment filed on October 28, 2003.


Conclusion

Overall, the cited references do not teach or suggest the claimed features of the embodiments recited in independent claim 1, and thus such claim is allowable. Because the remaining claims depend from allowable independent claim 1, and also because they include additional limitations, such claims are likewise allowable. If the undersigned attorney has overlooked a relevant teaching in any of the references, the Examiner is requested to point out specifically where such teaching may be found.

In light of the above remarks, Applicants respectfully submit that all pending claims are allowable. Applicants, therefore, respectfully request that the Examiner reconsider this application and timely allow all pending claims. Examiner Alejandro is encouraged to contact Mr. Abramonte by telephone to discuss the above and any other distinctions between the claims and the applied references, if desired. If the Examiner notes any informalities in the claims, he is encouraged to contact Mr. Abramonte by telephone to expediently correct such informalities.

Respectfully submitted,

Seed Intellectual Property Law Group PLLC

A handwritten signature in black ink, appearing to read 'Frank Abramonte', is written over a horizontal line.

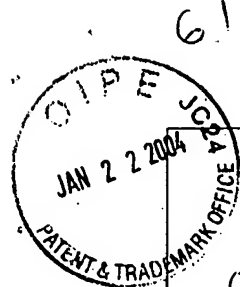
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First Named Inventor	David S. Wardrop
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Examiner Name	Raymond Alejandro
Attorney Docket No.	130109.431

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ENCLOSURES (check all that apply)

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Remarks

SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT

Individual Name	Frank Abramonte	Customer Number 00500
Signature		
Date	January 22, 2004	

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